NASPI
Work Group Meeting and Vendor Show

Chris Janick | Sr. Director - Power Delivery | Salt River Project
April 4, 2023
New to Phoenix Safety

3 FEET PLEASE
IT'S THE LAW

HANDS-FREE ARIZONA
ARIZONA'S NEW CELL PHONE LAW PROHIBITS

- Holding or supporting a wireless device while driving
- Writing or reading any text-based communication while driving
- Watching, recording, or broadcasting video while driving

EXEMPTIONS
- Hands-free, voice-to-text
- Stopped at a traffic light
- Reporting an emergency

Every Vehicle, Every Time.

NASPI 4.4.23, Chris Janick
New to Phoenix Safety

Harmless

Harmful
New to Phoenix Safety

Hike Smart

- Know your limits
- Plan your hike
- Hike with supplies
- Keep track of time/distance, yield to uphill hikers, take breaks
- Don’t hike alone, tell someone where you are going and when you expect to be back
SRP

• One of the nation’s largest public power utilities

• Provides reliable, affordable, and sustainable water and power to more than **2 Million** people

• The largest raw-water supplier in the Phoenix metro area, delivering about **800,000** acre-feet of water annually

• Peak power demand of **7,600 MW** and growing rapidly
Strong Economic Growth Ahead

- Maricopa County is the fastest growing county in the U.S.
- Phoenix is #1 U.S. city for domestic migration
- Significant industrial customer growth
- Housing permits are at the highest levels since mid-2000s
SRP’s System Growth

**History**

**Forecast**

- Peak Demand: 293 MW (3.2%)
- Energy Demand: 1,500 GWh (3.9%)
Intel $20B Arizona Plant Expansion Aimed at Fixing Microchip Shortage
By James Legate

Korean electronics giant LG announces huge expansion of plans for battery factory in Queen Creek
Published 9:56 a.m. MT March 24, 2023 | Updated 11:00 a.m. MT March 24, 2023

As Arizona data center is still under construction, Meta announces expansion to Mesa location
Russ Wiles
Arizona Republic
Published 4:55 p.m. MT May 4, 2022

How Arizona Is Positioning Itself for $52 Billion to the Chips Industry
The state has become a hub for chip makers including Intel and TSMC, as the government prepares to release a gusher of funds for the strategic industry.

Mesa lands big Google data center
By Jim Walsh, Tribune Staff Writer
Jul 1, 2019

An artist’s rendering shows some of the buildings planned at LG Energy Solution’s battery manufacturing plant in Queen Creek. Courtesy Of Ware Malcomb
Meeting Near-Term Needs with “AND” Strategy

- **Solar Additions**
  - 2025 MW by 2025

- **Battery Storage**
  - +1,098 MW by 2025

- **Flexible Natural Gas**
  - +99 MW by 2025

- **Palo Verde Nuclear**
  - +114 MW by 2024

- **Demand Response**
  - 188 MW by 2025

- **Wind**
  - +161 MW by 2024

- **Natural Gas Upgrades**
  - 190 MW by 2024

* Does not include Coolidge Expansion Project
Renewable and Energy Storage Additions

- **2020**
  - East Line 100MW
  - Saint 100MW
  - Central Line 100MW
  - West Line 100MW
  - Sonoran 260MW
  - Storrey 88MW
  - Saint Battery 100MW
  - Randolph 200MW
  - Copper Crossing 55MW
  - Babbitt Ranch 161MW
  - Sierra Estrella 250MW
  - Superstition 90MW
  - Co Bar 400MW
  - Cameron 200MW

- **2023**
  - Saint 100MW
  - Copper Crossing 55MW

- **2024**
  - Randolph 200MW
  - Babbitt Ranch 161MW
  - Co Bar 400MW

- **2025**
  - Saint 100MW
  - Copper Crossing 55MW
  - Randolph 200MW
  - Babbitt Ranch 161MW
  - Co Bar 400MW
  - Cameron 200MW

- **2026**
  - Central Line 100MW
  - West Line 100MW
  - Sonoran 260MW
  - Storrey 88MW
  - Saint Battery 100MW
  - Randolph 200MW
  - Copper Crossing 55MW
  - Babbitt Ranch 161MW
  - Sierra Estrella 250MW
  - Superstition 90MW
  - Co Bar 400MW
  - Cameron 200MW

- **By end of 2025**
  - Additional Projects +694MW

NASPI 4.4.23, Chris Janick
Key Challenge of Solar Energy

Forecasting, analyzing, and responding to the **variability** and the **uncertainty** of solar energy are operational challenges.
Transformation is Hard
SRP’s Operational Readiness Approach

• Operational Readiness is the capability for SRP to operate the future grid safely, reliably, and cost-effectively as intermittent resources are added

• Operational Readiness Strategy
  • Clearly and accurately represents what SRP needs to do to operate this new future grid
  • Address the who, what, where and why with an emphasis on systems, processes and tools

May 03, 2021

SRP to more than Double its Utility Scale Solar to 2,025 Megawatts by 2025

Salt River Project today announced plans to more than double its 2025 utility-scale solar commitment to now add a total of 2,025 megawatts (MW) of new utility-scale solar energy to its power system by the end of fiscal year 2025, driven in part by dedicated customer demand for new renewables. This is more than 1,000MW beyond SRP’s original 2025 commitment of 1,000MW, announced in November 2018. As part of this 1,025MW solar increase, 450MW is enabled by an SRP commercial customer to meet its renewable energy commitments. All the renewable energy purchased is expected to be from solar energy developments built in Arizona or on the Navajo Nation and will ultimately be used by SRP commercial and residential customers.

“As we plan for our customers’ increasing need for energy and their desire for a cleaner environment, solar energy is a key solution that is significantly growing our sustainable generation portfolio,” said SRP’s CEO and General Manager Mike Hummel. “Doubling solar purchases over the
Operational Readiness Gaps

**GENERATION**
- Dispatchability
- Reserves
- Grid Services
- New Technology

**TOOLS**
- Forecasting
- Situational Awareness
- Analysis
- Software Integration

**PEOPLE**
- Training
- Expertise
- Collaboration & Feedback
- Mission
Operational Readiness Themes

1. Fully Leverage New Resource Capabilities
2. Economic Dispatch with Solar + Storage
3. Risk-Adjusted Reserve Requirements
4. Advanced Forecasting Tools
5. Software and Situational Awareness

Technical Readiness Themes

Enabling Themes

Training
Key Performance Metrics
Mission Alignment
Collaborative Workflows and Feedback
## Operational Readiness Projects

<table>
<thead>
<tr>
<th>Tier Levels</th>
<th>1 – Reliability Critical</th>
<th>2 – Cost Effectiveness</th>
<th>3 – Process Efficiencies &amp; Scalability</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Enable visibility and physical dispatch (Bolster Testing)¹</td>
<td>4 Enhance IBR economic dispatch¹</td>
<td>5 Develop and implement flex reserves capacity¹</td>
<td>6 Advanced solar forecasting tools¹</td>
</tr>
<tr>
<td>2 Add dispatch flexibility to IBR PPAs¹</td>
<td>13 PCI/Aurora economic dispatch improvements²</td>
<td>15 System variability analysis²</td>
<td>7 Solar forecast integration¹</td>
</tr>
<tr>
<td>3 IBR value stream analysis¹</td>
<td>14 Fleet ramping capability analysis²</td>
<td>16 Load forecasting improvements³</td>
<td>17 Control room IBR video wall²</td>
</tr>
<tr>
<td>10 TGO renewables desk evaluation³</td>
<td></td>
<td></td>
<td>18 System power quality &amp; inertia monitoring³</td>
</tr>
<tr>
<td>11 DER integration &amp; aggregation³</td>
<td></td>
<td></td>
<td>19 EIM process and tools improvement²</td>
</tr>
<tr>
<td>12 Inverter technical standards &amp; integration inc relay settings for IBRs²</td>
<td></td>
<td></td>
<td>20 Software infrastructure improvements²</td>
</tr>
</tbody>
</table>

¹ NASPI 4.4.23, Chris Janick
# Distribution Grid Transformation Drivers

## Grid Integrity
- More dynamic grid
- Bi-directional power flow
- New solutions available to address grid issues

## DER/EV Management
- Dispatchable & variable energy resources
- Flexible loads
- Customer integration

## Customer Enablement
- Customer interconnection experience
- Enable customer programs
- Customer information
SRP’s Distribution Enablement Vision

- Anticipate customer demand and plan for the dynamic nature of DERs.
- Operate a dynamic grid with increased situational awareness and control.
- Enable new products and customer offerings as technology continues to evolve.
- Empower future-focused workforce prepared for grid transformation.
Successful Grid Transformation Requires

INNOVATION  GROWTH MINDSET  VOICE
thank you!